

Features

- Electrostatic sensitive devices
- Excellent package for good heat dissipation

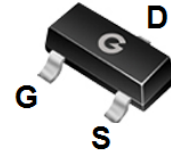
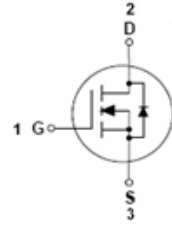
HF

APPLICATIONS

- Power switching application
- Hard switching and high frequency circuits
- Uninterruptible power supply

Mechanical Data

- Case: SOT-23
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



SOT-23

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL02N10C	SOT-23	3000 pcs / Tape & Reel	2N10

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V _{DSS}	100	V
Gate-to-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current	I _D	2	A
Pulsed Drain Current ^{*2}	I _{DM}	5	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P _D	0.35	W
Thermal Resistance Junction-to-Air ^{*1}	R _{θJA}	357	°C/W
Thermal Resistance Junction-to-Lead ^{*1}	R _{θJL}	214	°C/W
Thermal Resistance Junction-to-Case ^{*1}	R _{θJC}	180	°C/W
Operating Junction Temperature Range	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	100	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 100V, V_{GS} = 0V$	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance ^{*2}	$V_{GS} = 10V, I_D = 2A$	-	0.204	0.24	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	2.1	2.5	V
g_{FS}	Forward Transconductance	$V_{DS} = 5V, I_D = 2.9A$	-	-	1.2	S
Dynamic Characteristics						
C_{ISS}	Input Capacitance	$V_{GS} = 0V$	-	392	-	pF
C_{OSS}	Output Capacitance	$V_{DS} = 25V$	-	24	-	
C_{RSS}	Reverse Transfer Capacitance	$f = 1.0MHz$	-	14	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD} = 30V, V_{GS} = 10V$ $R_G = 2.5\Omega, R_L = 15\Omega$ $I_D = 2A$	-	11	-	ns
t_r	Turn-on Rise Time		-	7.4	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	35	-	
t_f	Turn-Off Fall Time		-	9.1	-	
Q_G	Total Gate-Charge	$V_{DD} = 30V$	-	12	-	nC
Q_{GS}	Gate to Source Charge	$V_{GS} = 10V$	-	3	-	
Q_{GD}	Gate to Drain (Miller) Charge	$I_D = 2A$	-	1.6	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage ^{*2}	$I_{SD} = 2A, V_{GS} = 0V, T_J = 25^\circ\text{C}$	-	-	1.2	V

Notes:

1. Device mounted on FR-4 PCB
2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

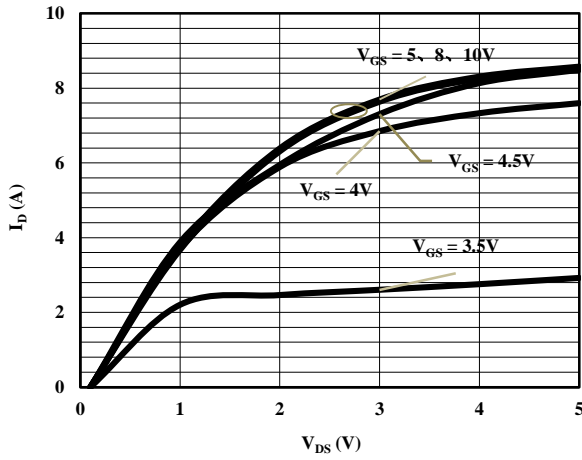


Fig 1 On-Region Characteristics

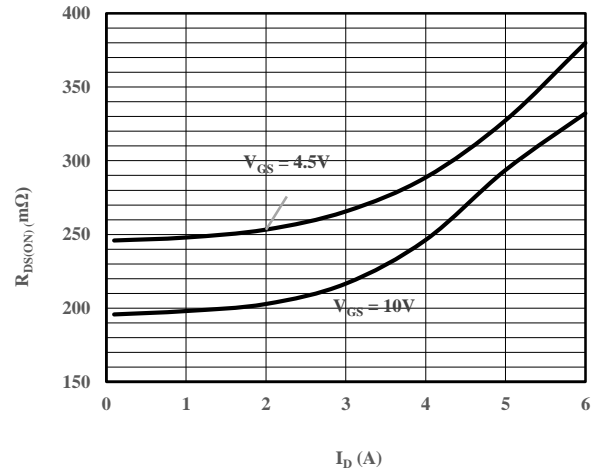


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

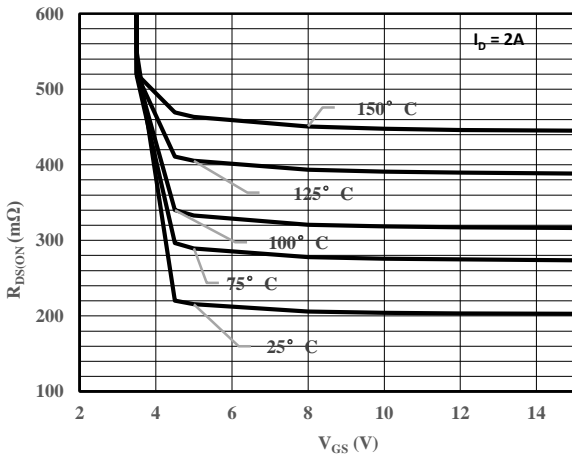


Fig 3 On-Resistance vs. Gate-Source Voltage

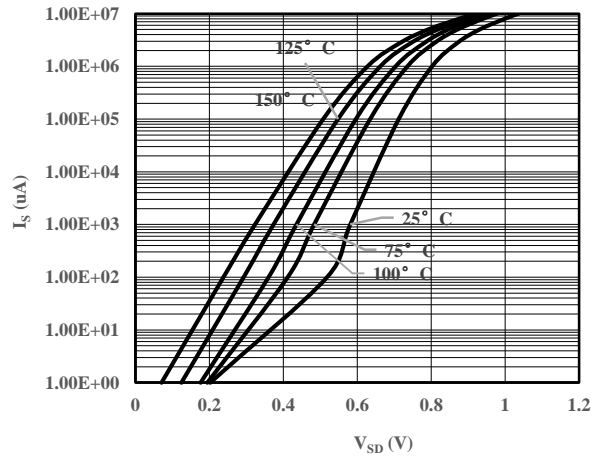


Fig 4 Body-Diode Characteristics

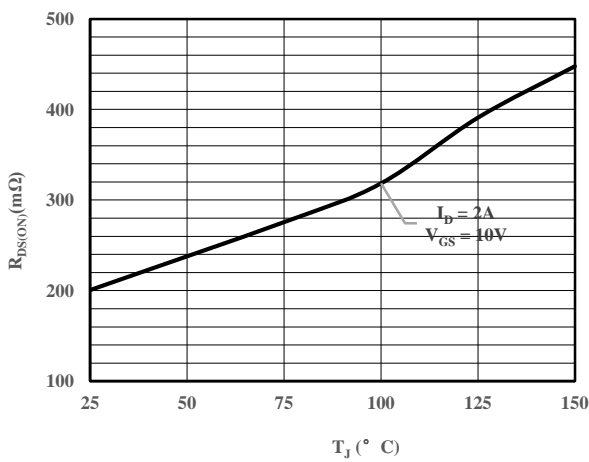


Fig 5 On-Resistance vs. Junction Temperature

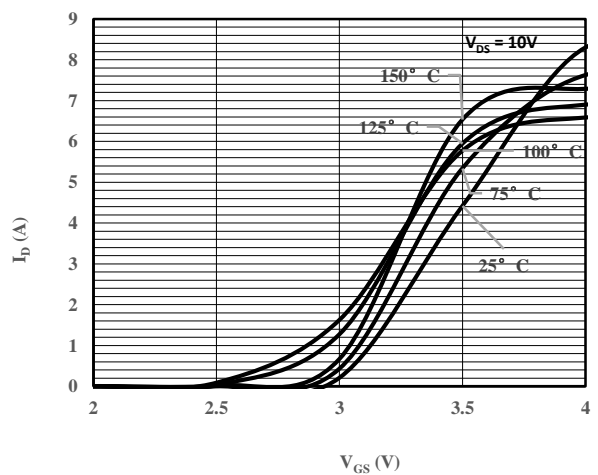


Fig 6 Transfer Characteristics

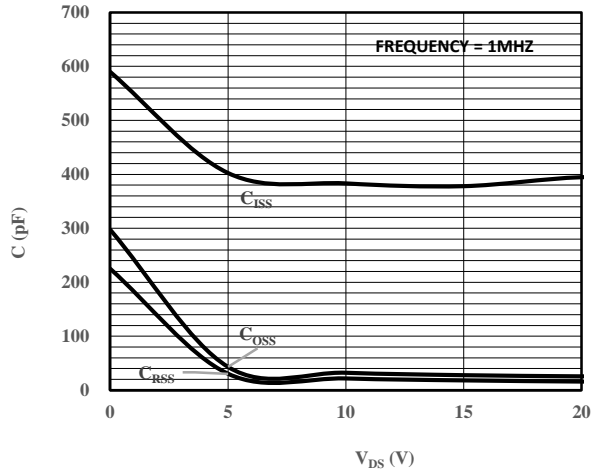


Fig 7 Capacitance Characteristics

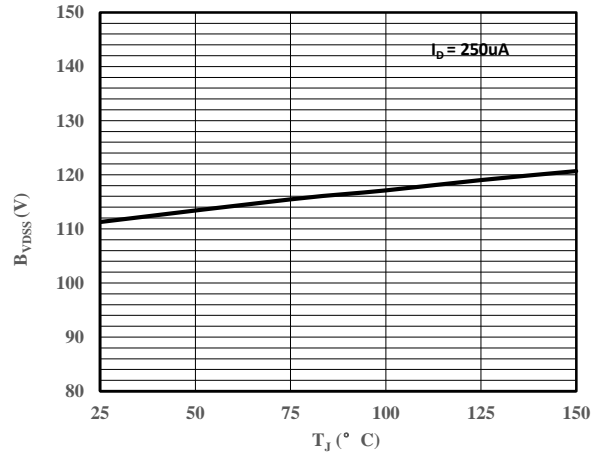


Fig 8 Drain-Source vs. Junction Temperature

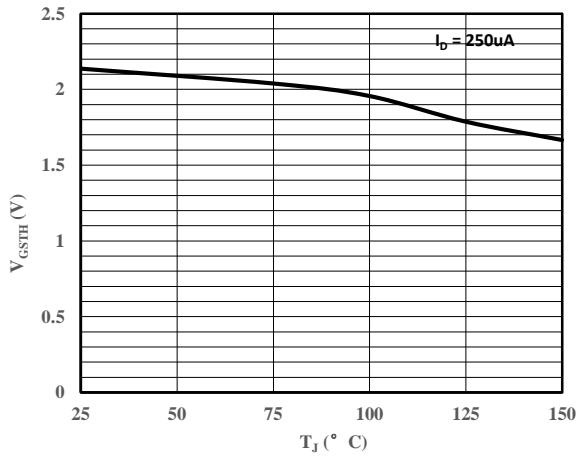
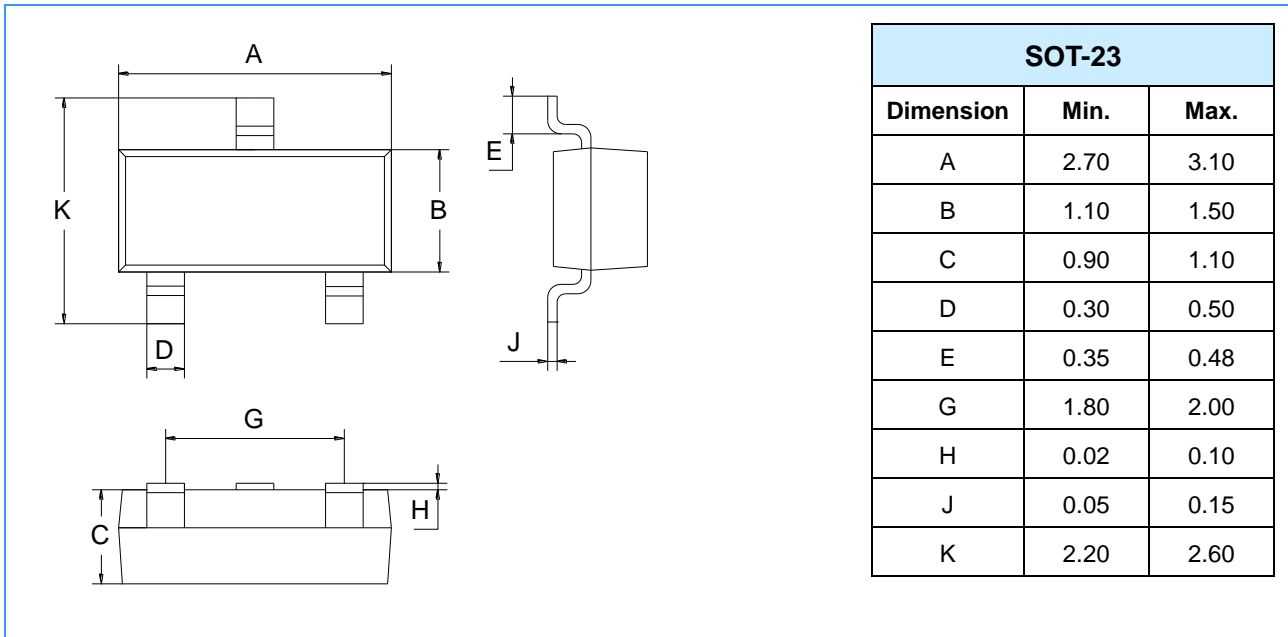
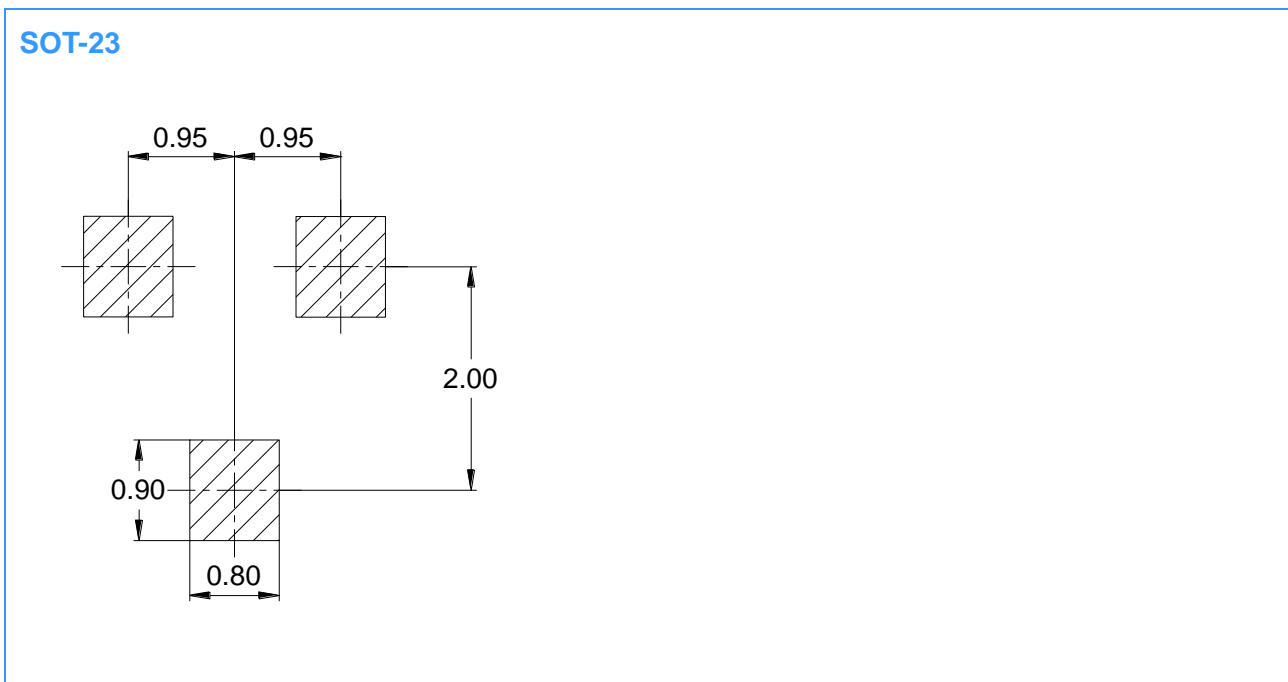


Fig 9 Gate Voltage vs. Junction Temperature

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



Important Notice

Changzhou Galaxy Century Microelectronics (GME) reserves the right to make changes without further notice to any product information (copyrighted) herein to make corrections, modifications, improvements, or other changes. GME does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others.